REMARKS

The present amendments correct errors in page and paragraph numbering. The current specification provides a complete and enabled written description of the invention and the best mode for implementing the invention. For the sake of example, the benefits and advantages of Fig. 15 are reproduced below.

Specifically, the configuration of the MRAM cell 60 in Fig. 15 increases not only the MR ratio of MTJ device 1512, but also the total resistance of the MRAM cell 60. Without a significant difference between Rab and Rcd, the equivalent resistance of the MRAM cell 60 could not be resolved into at least four different MR ratio sensing states. In this case, if it is assumed that the MR ratio of MTJ device 1512 is 30% under the bias voltage and MTJ device 1514 could be 50%.

The table below shows a sensing state example of a single barrier MTJ and a single barrier MTJ with a Load Resistor in Series with a (one transistor, two MTJ) cell, and the resultant MR ratio between each state. For example, assuming an MR ratio of 30% under the bias voltage of a bit line 1128, 1130, 1132, and/or 1134, one MTJ device 1512 could have an MR ratio of 30% while MTJ device 1514 could have an MR ratio of 50% in a single junction with barrier 104. Therefore, logical binary state 1 could have 1 for MTJ device 1512 and 1 for MTJ device 1514, while a binary logical state 0 could have 1.3 for MTJ device 1512 and 1.5 for MTJ device 1514 in a single junction MTJ device 1512 with multiple junction 504 1T2MTJ (one transistor, two MTJ) cell 506. In this example, the series resistor 1508 could have, for both logical binary states of 0 and 1, a value of 0.8 to make the MR ratio of every magnetic sensing state closer.

Digital State	MTJ 1502	MTJ 1504 + Resistor 1508	Rab \\ Rcd	MR Ratio
MTJ 1502 = 1 MTJ 1504 = 1	1	1.8	1 \\ 1.8 = 0.643	
MTJ 1502 = 1 MTJ 1504 = 0	1	2.3	1 \\ 2.3 = 0.697	(1,1)/(1,0) = 8.4%
MTJ 1502 = 0 MTJ 1504 = 1	1.3	1.8	1.3 \\ 1.8 = 0.755	(1,0)/(0,1) = 8.3%
MTJ 1502 = 0 MTJ 1504 = 0	1.3	2.3	1.3 \\ 2.3 = 0.831	(0,1)/(0,0) = 10%

Applicants enclose a substitute specification, which renumbers the pages consecutively and incorporates the amendments submitted herewith. An early notice of allowance is hereby respectfully requested.

Respectfully submitted,

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